DANIEL ANDREW FROST

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Education

Ph.D. The University of Leeds 2010-2014

Thesis: "Seismic observation of the Earth's small-scale structure"
Structure of lower mantle using scattered seismic waves and relation to large-scale features
Detecting the edge of the Pacific Large Low Shear Velocity Province using P-waves

MEarthSci The University of Oxford 2006-2010

Earth Sciences 2.1 Classification
Masters thesis: "A marine geophysical study of the Tonga Trench-Louisville ridge collisional system in the South-West Pacific Ocean"

Employment

Assistant Project Scientist University of California, Berkeley 2019-present

Funded by NSF grant 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy, and NSF grant 2027181: Collaborative Research: Towards improved imaging of the outermost core through determination of the effects of lowermost mantle heterogeneity and anisotropy, and NSF grant 2050011: Imaging deep mantle structure beneath Alaska using full waveform tomography
Understanding structure and tectonics of mantle beneath Alaska
Implementing regional box tomography
Improving resolution of deep Earth by understanding shallow mantle influence

Postdoctoral Scholar University of California, Berkeley 2016-2019

Funded by NSF grants 1135452 and 1829283: Resolving the influence of mantle heterogeneity on estimates of inner core anisotropy
Inner core anistoropy using exotic seismic phases and seismic arrays and mineral physics
Supporting the research output and organisation of the Cooperative Institute for Dynamic Earth Research (CIDER) program
Preparing educational reports on multidisciplinary topics for CIDER
PDRA: Barbara Romanowicz

Postdoctoral Scholar Arizona State University 2014-2016

Funded by NSF grant PVS0695: Deep mantle cycling of oceanic crust
Distribution of small-scale heterogeneities throughout both the upper and lower mantle and their relation to mantle dynamics and subduction
The influence of broad lower mantle heterogeneities on deep-travelling S-waves and the effect on analysis of outer core structure
PDRA: Edward Garnero

Research Interests

Whole Earth structure, earth evolution, cross-disciplinary studies, influence of convection on mantle structure, seismic scattering, core structure, anisotropy, chemical heterogeneity, D″ complexity, array seismology, tomographic inversion, developing seismic methodologies

Publications - in print or in review

14. Creasy, N., Bozdag, E., **Frost, D.A.**. Sources of Body Wave Polarization Anomalies due to Earth's Coriolis Effect, *submitted to GRL*

13. **Frost, D.A.**, Avery, M.S., Buffett, B.A., Chidester, B.A., Deng, J., Dorfman, S. M., Li, Z., Liu, L., Lv, M., Martin, J.F. Multidisciplinary constraints on the thermal-chemical boundary between Earth's core and mantle, *accepted at G3*

12. **Frost, D.A.**, Romanowicz, B., Lasbleis, M., Chandler, B., 2021. Dynamic history of the inner core constrained by seismic anisotropy, Nat. Geosci., 14, p. 531–535

11. **Frost, D.A.**, Romanowicz, B., 2021. Effects of upper mantle structure beneath Alaska on core wave absolute and differential measurements: implications for estimates of inner core anisotropy, Phys. Earth. Planet. Int., 315, 106713

10. McMahon, S., Ivarsson, M., Wacey, D. , Saunders, M., Belivanova, V., Muirhead, D., Knoll, P., Steinbock, O., **Frost, D.A.**, 2021. Dubiofossils from a Mars-analogue subsurface palaeoenvironment: the limits of biogenicity criteria, Geobiology

8. **Frost, D.A.**, Romanowicz, B., Roecker, S., 2020. Upper mantle slab under Alaska: contribution to anomalous core-phase observations on South Sandwich to Alaska paths, Phys. Earth. Planet. Int., 299, 106427

8. **Frost, D.A.**, Romanowicz, B., 2019. On the orientation of the fast and slow directions of anisotropy, Phys. Earth Planet. Int., 286, p. 101-110

7. **Frost, D.A.**, Garnero, E.J., Rost, S., 2018. Dynamical links between small- and large-scale mantle heterogeneity: seismological evidence, Earth Planet. Sci. Lett., 482, p. 135-146

6. **Frost, D.A.**, Romanowicz, B., 2017. Constraints on Inner Core anisotropy using array observations of P′P′, Geophys. Res. Lett., 44, p. 10,878-10,886

5. **Frost, D.A.**, Rost, S., Garnero, E.J., Li, M., 2017. Seismic evidence for Earth's crusty deep mantle, Earth Planet. Sci. Lett., 470, p. 54-63

4. Rader, E., Emry, E., Schmerr, N., **Frost, D.A.**, Cheng, C., Menard, J., Yu, C., Geist, D., 2015. Characterization and Petrological Constraints of the Midlithospheric Discontinuity, G-Cubed, p. 3484-3504

3. Rost, S., Earle, P.S.., Shearer, P.M., **Frost, D.A.**, Selby, N.D., 2015. Seismic Detections of small-scale heterogeneities in the deep Earth, Springer Monograph, in *The Earth's Heterogeneous Mantle*, c. 12, p. 367-390

2. **Frost, D.A.**, Rost, S., 2014. The P-wave Boundary of the Large-Low Shear Velocity Province beneath the Pacific, Earth Planet. Sci. Lett., 403, p. 380-392

1. **Frost, D.A.**, Rost, S., Selby, N.D., Stuart, G.W., 2013. Detection of a tall ridge at the core-mantle boundary from scattered PKP energy, Geophys. J. Int., 195, p. 558-574